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CONTENTS

A Monism of Creative Behavior: OLIVER L. REISER..... 477

Towards Realistic Psychology: LOUIS ARNAUD REID..... 492

Book Reviews:

Nef's Die Philosophie Wilhelm Wundts: EDGAR WIND..... 498

Wohlgemuth's A Critical Examination of Psycho-Analysis: GEORGINA S. GATES..... 502

Journals and New Books..... 503

Notes and News..... 504

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Congrès International d'Histoire des Religions. STERLING P. LAMPRECHT.
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THE JOURNAL OF PHILOSOPHY

A MONISM OF CREATIVE BEHAVIOR

I

HISTORICALLY the human intellect has always faced certain problems, the endless discussion of which has, to a large extent, constituted the materials and defined the scope of metaphysics. These problems are set by certain dualisms which have been established, the traditional dualisms of *soul* and *body*, of *life* and *matter*, and of *matter* and *energy*. There is little difficulty of understanding why the very mode of statement has rendered insoluble these problems of interaction which are thus created. If we make of matter a kind of existent somehow qualitatively different from energy, it is not to be wondered at that we have on our hands the problem of explaining the inter-relations between the two; again, if living processes be hypostatized into reality of a different category from biochemical phenomena we inevitably face the problem of explaining how a meta-empirical entity, by hypothesis different from biochemical processes, which are taken as the "physical basis of life," can act upon spatial configurations, without doing violence to the fundamental principles of physics and chemistry. Finally, theoretical psychology has created for itself another of these insolubilia in conceiving the mind to be a reality over and above the physiological mechanism through which it is held to express itself.

Now, so long as the one end term of the dualism is held to have nothing in common with the vehicle which serves as its seat of operation, it is inconceivable how these two realities can interact upon each other. The usual reply to this objection to the theory of dualistic interactionism is that many things happen in this world which we do not understand, and since they happen in spite of our inability to understand how they happen, inconceivability can have nothing to do with the matter. Concrete facts are not to be sacrificed to abstract theories, the interactionist may argue. There are phenomena even in physics (such as those at the basis of the quantum theory of energy), which are as difficult to understand and explain as the influence of mind on body. But the philosophical value of this doctrine is questionable, for, in effect, it simply confesses a despair at ever explaining anything in the universe of time and space.

While it is perhaps impossible to build a philosophy which does not somewhere rest upon miracles, the proper attitude seems to me to be that our theories must be of such a character that these miracles or discontinuities of thought and reality be made as small as possible. For some reason or other it is much easier for most thinkers, including scientists, to swallow a large number of small discontinuities than to try to gulp down a small number of large ones. And, after all, the plausibility of vitalism and animism (in Wm. McDougall's sense) rests upon the method of postulation, *i.e.*, mind seems to explain only because it is endowed, by definition, with the attributes necessary to account for what seem to be the facts.

Just as in the individual intellectual progress grows out of the method of defining the extremes within which concepts and categories are to vary, so in the history of human thought intellectual progress, such as it is, has sometimes been achieved through a series of compromises involving the formulation of "golden means" between antithetical extremes. One of the evidences of such a *rapprochement* in contemporary thought is exhibited by the gaining momentum of the interpretation of man and nature which combines many of the characteristics of both the naturalistic and idealistic views, and excludes what are now accepted as the defects of materialism and naïve physical monism. One needs only to point to Santayana's *Scepticism and Animal Faith,* C. Lloyd Morgan's *Emergent Evolution,* and R. W. Sellar's *Evolutionary Naturalism* to see which way the naturalistic wind is blowing. In order to introduce, as a *liaison* between naturalism and idealism, the view herein designated as a "creative monism of action," I shall present a preliminary discussion of the psychological motivations of dualisms.

It will be noted that the traditional dualisms of thought rest upon a disjunction of an active agent and a passive recipient. It is the thesis of this section of the present essay that these dichotomies of thought arise out of the inveterate tendency to hypostatize into a thing or entity any kind of activity which can be treated as sufficiently integral with respect to neighboring and contemporaneous transformations or groups of behavior to be labelled with a term. Thus matter, life, and mind have been reified by materialists, vitalists, and animists into self-subsistent and independent entities because there is something inherent in the way we think which lures us into the substance-action habit of thought. Even such a brilliant thinker as A. N. Whitehead has not succeeded in overcoming this dualism of "objects" and "events."

The present writer believes that the chasms created by the dualistic mode of thought can be bridged by the formulation of a monism of action. But there are certain logical obstacles which impede the

way to the establishing of the doctrine that substance is composed of complications of movements. Some of the verbal underbrush hampering the approach to a universal behaviorism may be cleared away by the following remarks concerning the logic of thought.

Judgments about the external world are put in the form of propositions. Traditionally, the substantialistic parts of these propositions are taken to be represented by *terms*, and the transitive parts by *relations*. It may help us to understand how the nexus between events and objects is to be tightened by pointing out that *terms are concepts* and that if, as Leighton [1] asserts, the concept of anything is the law of its behavior, then an object is itself an event or unity of behavior. In other words, the "objective referents" which are symbolized by the substantialistic terms are themselves groups of movements, which are taken as entities with qualities because they remain relatively "invariant" during the "transformations" which are cut out from the "movement-continuum" of events by the "specious present" (or what H. Wildon Carr in his *Theory of Monads* calls the "moment of experience") of the perceiving organism. The objects to which the concept refer are events which "do not pass," because, in the span of attention in which they are isolated, their behavior is assumed to be unitary with respect to the contexts or fields in which they are set.

As with the terms "cause" and "effect," there is a certain pragmatic justification for the distinction between *substance* ("objects") and *action* ("events"). Concepts epitomize flowing perceptual patterns of motion, and for purposes of simplification in adaptation to our environments we reify this movement in order to deal with it as integral in relation to more remote ends to be attained. "Substance" is only a resting place for thought, expressing a kind of intellectual fatigue or unwillingness to analyze further. What is a substantial level referred to one stratum of behavior may be an energy level referred to another. Thus the dualism of matter and energy appears as a special case of a more general psychological procedure whereby we adjust ourselves to the passage of external nature.

These considerations suggest that the method of attack for resolving these dualisms lies in the search for a universal relationship which contains a *static* and a *dynamic* aspect. The guiding principle of this inquiry lies in the attempt to reveal the prototype for all subsequent dual relationships which have appeared in the course of evolutionary travail.

This pervasive two-term relation has already been suggested. One of the long-standing problems of metaphysics is that of the

[1] *Man and the Cosmos*, by J. A. Leighton, chapter III.

relation between substance and action and quantity and quality. Here, on the "physical" level, we find the same dualism which has its analogue on the "higher" levels of nature. If we construe the relation between space and time as expressive of the ubiquitous static and dynamic aspects we have the homologue for the relationships appearing subsequently in biology and psychology, and which obtain under the terms *"structure"* and *"function."* From the view-point of a monism of action the structural, static, or spatial aspect is to the functional, dynamic, and temporal aspect as energy is to matter, as soul is to body, as action is to substance, as life is to protoplasmic systems. These concepts are inseparable and mutually complementary notions.

If, then, we grant that substance and action, like quantity and quality, are the logical limiting notions of an ontological essence which, in reality, is both (*i.e.*, substance-action or a quantity of quality), we must next ask ourselves, what is the analytical unit out of which the creative and evolving universe is to be constructed? In the scheme of universal behaviorism every existent is an entity in the sense that it is a unitary mode of behavior persisting through contemporaneous change. This idea of a dynamic synthesis perduring through the give and take with a circumambient field of externality, termed the *movement-continuum,* is embodied in the conception of a *behavior-stuff,* as a quantity of quality. This concept is deliberately formulated to bridge the hiatus between substance and action, and to overcome the dualism of quantity and quality. Its validity rests upon recent developments in theoretical physics wherein *events* are regarded as the analytical elements of the space-time continuum.

We have indicated that this monism of action admits of novelties in evolution, and that, therefore, all the emergent objects in the universe are deployed along the lines of a creative advance which outstrips the mechanistic schemes of nature. But what, in a universal behaviorism, can the "emergence" of "qualities" mean? If quality be a unitary mode of behavior, the emergence of qualities is the summarizing of the random or chaotic activities of microscopic events into "macroscopic rhythms," which unify the statistical effects of the constituent elements. This confers *thinghood* upon a system of events. This evolution of orderly systems of relatedness is possible because every event is imbedded in a field of externality which superimposes integral unity upon plurality because the cosmos as a whole is an individual, in the sense that it acts as a self-contained whole in directing the emergence of all empirical existents within its own being.

The following sections are a more detailed application of this view which I have termed a creative monism of action.

II

We now face the problem of attempting to decide whether there is any determinable relation between the "creative advance of nature" as it exhibits itself in our particular corner of the universe and the character of cosmic processes as a whole. This is nothing more or less than the problem of cosmic teleology. In the following pages I hope to outline a theory which is not contradictory to the established principles of science, but which is also in line with the main tenets of idealism.

So far as the question of the place of human individuality in the cosmos involves the question of the "internality of relations," the answer of science is final. In a strictly physically monistic conception every phenomenon of nature is more or less directly related to every other process, no matter how distant in space or time. Just how the theory of relativity will alter this spatio-temporal conception of causal continuity is not easy to say, but there is no reason to suppose that it will undermine the doctrine of the relatedness and interdependence of natural phenomena. Rejecting the mysticism of the logical atomists in this matter of the internality *versus* the externality of relations, I shall argue that the theory of relativity really strengthens the "underlying reality" theory of the idealists. This doctrine of cosmic teleology, in its scientific form, has, I believe, been argued in its most persuasive and effective form by Lawrence J. Henderson in his two books, *The Fitness of the Environment* and *The Order of Nature*.

Putting aside as vain speculation such questions as to whether there are other possible kinds of worlds, in which matter may have different properties, and energy different forms, and life a different physical basis, Henderson points out that in the course of cosmic evolution two compounds, water and carbon dioxide, have necessarily found a place on the surface of the earth. These three constituent elements, which are the principle factors in geologic and organic evolution, make up a unique ensemble of properties of physical and chemical characteristics. The latent heat of vaporization of water, its solvent action, the capillary phenomena of aqueous systems, the solubility of carbon dioxide in water, and the various other chemical and energetic phenomena which arise from the inter-relations of these elements are all in accordance with the "order of nature," which means that this ensemble of properties is favorable to the existence of *systems*. The world of physics and chemistry, as Willard Gibbs has shown, consists of systems, with their phases, components,

and activities, and Henderson affirms that there is no instance of unfitness for the diversity and durability of systems in general. This certainly argues for cosmic and inorganic teleology, in the sense of favorability for the appearance of life here on earth, though what its bearing upon the existence of organisms on other stellar bodies may be is not so obvious.

This ordering principle in nature can be conveniently illustrated by reference to the laws of thermodynamics. If we accept the interpretation of the second law of thermodynamics which construes it as a statement of the tendency of orderly motion to become disorderly and chaotic, then the problem arises of how, if a disorderly and chaotic tendency exists in nature, it is that this movement towards chaotic motion, or increase of *entropy,* is sufficiently suspended so that a higher order is possible. In other words, why doesn't the world-whole consist of a chaotic conglomeration of colliding electrons and protons so mixed up as to be unable to arrive at atomic and molecular syntheses?

Without doubt, there is a tendency towards "mutual aggregation," as Royce expresses it, underlying the integrative and synthetic character of natural processes. But a *macroscopic rhythm,* or unity of behavior, can not be regarded as but the "central tendency" of a frequency distribution statistically studied. A macroscopic rhythm is a product of a synthesis, expressing the fact that a new order has emerged out of a process which, in accordance with the disorderly tendency symbolized by the second law of energetics, tends to become mixed up. And how can we understand a state of affairs in which the improbable (a higher order) is constantly being realized, where disorderly tendencies are constantly being transcended by a "new order of relatedness," which, on its own level tends again to become disorderly, and yet which somehow permits itself to be summarized into a still more complex unity of behavior or macroscopic rhythm?

If the above analysis is correct, the inability to integrate the random activities of microscopic movements into the laws of macroscopic rhythms indicates that there is some synthetic action in operation, escaping the analytical technique of science, by virtue of which the perceptible end result goes beyond the antecedent and simultaneous conditions of any emergent. By way of approach to a solution to this problem I wish to point out that the categories of purpose and order, on the organic level, can be deduced from the category of *individuality*—the fact that the whole organism, as an indivisible unity, is a trans-temporal existent acting in the light of the past and future because the individual responses are subordinated to the integrative action of the organism as a whole.

Assuming that cosmic order is analogous to order as we, who are products of nature, know it, the implication, as I have suggested, is that the cosmos is an individual, in some sense of the term, which acts in its constituent parts so as to convert what we call disorder (which, as Bergson states, may only be another *kind* of order) into order. This introduction of cosmic determinism into the evolution of order-systems weakens the case for any kind of "creative" theory, and it is interesting to note that Lloyd Morgan, in his *Emergent Evolution,* unlike S. Alexander, is almost forced to give up the emergent theory, and is compelled, after the fashion of Hegel, to take refuge in a paradoxical distinction between "causation" and "causality." Perhaps we may resolve this dilemma of creativity *versus* spiritual determinism by holding that there is only relative disorder and only seeming novelty in the universe, and that novelty and disorder are relative in the sense that they are such only to our limited human point of view. Absolutely, there is no such thing as novelty or disorder. The difficulty with this solution is analogous to the facile solution to the problem of the existence of evil, *i.e.,* the viewing of "evil" as "good in the making." This, however, is a digression.

The explanation of the emergence of order out of chaos lies in the fact that the future, which is not yet, somehow influences the present which is. *How the possibility of what a thing might become actually helps to determine what it does become is the ultimate mystery of evolution.* I propose to show that this phenomenon of temporal transcendence arises out of the relation of the whole of the universe, as a unitary continuum, to its parts. That there is evidence that this foresight exists even on the atomic level will be shown in a moment, though the basis was laid in Dr. Whitehead's conception of the *physical field* as the character of nature which expresses this relatedness between the past and the future.

The purpose, therefore, of the following discussion is to demonstrate (1) that not only the past happenings, but also the future possibilities, of the universe determine what the present configuration of events will be, and (2) that the total universe, as an unbounded but self-contained individual (unity-in-variety), is actively involved in every part and process thereof, and that it is this possibility of a future unity which overcomes the disorganizing tendency towards chaos by lifting complexes up to the higher unities which we have called macroscopic rhythms.

III

The greatest difficulty which the present view encounters lies in the fact that chemists, biologists, and psychologists feel no need for

the conception of fields of force to explain the phenomena which constitute the data of their respective sciences. For that matter, until recently, physicists have been inclined to regard lines of force as imaginary geometric representations, having no corresponding reality in the actual electromagnetic phenomena which they were invoked to explain. The chemist, not much concerned with the difficulties of theoretical physics, is inclined towards what may be termed a bead theory of chemical action. This bead theory rests upon the implied assumption that electrons, atoms, and molecules are independent, distinct, objective physical entities, separated from each other by empty space. If we accept the Lewis-Langmuir conception of valency and chemical affinity as the sharing of electrons arranged in symmetrical shells or on the corner of cubes, even this atomistic way of viewing cohesive forces as the attraction of material nuclei must appeal to the conception of electrostatic pressure in some sort of medium.

The consequence of the bead theory has been that it has actually obscured the solution to the problems of the sciences resting upon physical chemistry. For example, to explain biological phenomena, such as those involving osmotic pressure and surface tension, physical efficacy is attributed to abstract spatial and geometrical properties. Thus, one theory of muscle contraction, based upon the phenomenon of surface tension, "explains" the alteration of the shape of muscle cells from an elongated to a more spherical shape, upon the reception of a stimulus from the neural ramification in the muscle, by assuming that the nervous impulse has altered the electrical potential of the cell membrane, so that the cell tends to assume the spherical shape because the surface tension of the membrane, acting as a tight skin, tends to squeeze the bulk into the greatest mass-surface ratio, which is spherical. This is the only possible explanation, on this theory, if we ignore the interlacing molecular fields of force as the essence of the spherical cohesive power of "empty" space. How physical efficacy is to be derived from empty space, or how causal action can be imputed to pure geometrical relations, has never been demonstrated.

The thesis of the present argument is that the cohesive forces of chemical affinity, and integration in general, are the effect of the tensions created by interlacing fields of force, which really constitute the space (field of energy) converging towards the "material" loci of the perceptible configuration. To a certain extent this is derealizing matter, *i.e.*, the visible part of the spectrum of chemical transformations becomes but a cross section of a wider range of action. If the atomic entities of chemical activities were not immersed in a universe of radiant energy, chemical action would be out of the ques-

tion. This argument may be strengthened by an appeal to an analogy: The field of force which attends the distribution of the iron filings influenced by a magnet is just as real as the particles which serve as the indicators of the orientation of the lines of force. This is taking "lines of force" in a more literal sense than most physicists have been in the habit of viewing them, but I can not understand a modification of the space surrounding a magnet, as evidenced by the effects upon a compass needle, which is not an actual physical, as well as a purely geometrical, alteration of space. The following is a statement of how this realistic conception may be applied in the explanation of the integration of complexes.

On the physical level we have attributed unity of action of behavior-complexes to the enclosing fields of force which somehow super-add macroscopic rhythms to the random activities of the microscopic whirls of events. The illustration, *par excellence*, of this conception in physics is the molecular theory of magnetism. Perhaps something of the same mechanism is to be postulated in the radiation theory of chemical action.[2] Moreover, any theory of chemical action involving electrostatic pressure must assimilate the conception of a circumambient field of force. Have we any right to further demand enough consistency of action on the part of nature to suppose that fields of force play a rôle in the phenomena studied by biology? It is very interesting to note that such evidence does exist. According to H. Graham Cannon,[3] the behavior of chromosomes in their orientation with respect to the centrosomes may be determined by fields of force active in controlling mitosis. That the arrangement of chromosomes on an equatorial plane should coincide with the arrangement of floating magnets in Mayer's experiment was first pointed out by R. S. Lillie in 1905. This, let us remember, is the same experiment which has suggested one of the theories of the orientation of electrons in atomic orbits. And that the conception of the field may eventually have to be invoked in the explanation of *physiological gradients, growth potentials,* and the action current of the nervous impulse I have already suggested.

Let us, therefore, start with this assumption that every atomic fact of nature, from an electron to the quantum of nervous energy, (an "all or none" pulse) is set in a wider environing contour which is its field. Given such a nodal system of particles, there will be a field which will determine what kind of physical configuration can be further assimilated to this stress-center. Any such existent can

[2] "Chemical Reactivity and the Quantum Theory," by E. K. Rideal, *Nature*, Vol. 108, Oct. 20th.

[3] "On the Nature of Centrosomal Force," by H. Graham Cannon, *Journal of Genetics*, Vol. 13, No. 1, 47–79.

maintain itself only by demonstrating its fitness to survive under conditions resembling biological struggle for existence. So far as the present writer is informed, Karl Pearson, in an early edition of *The Grammar of Science*, was the first to extend the notion of "survival of the fittest" to include inorganic phenomena. There is, then, a pressure from the "rear" or a suction from the "front" which urges every complex on towards a greater unitary mode of behavior. Even "matter," which is an aggregate of "energy-knots" in the field, does not escape this demand. Nor, for that matter, do the "inert" gases.

At any given time a certain cross section of nature will reveal a *static* aspect, which represents what has already been accomplished, and functioning in accordance with which constitutes the mechanical aspect of behavior, and a *dynamic* aspect, which represents the actual transformations in progress. It is this nisus towards the future, the movement towards the integration of higher unities, which we designate as the "teleological" aspect of nature. The static aspect we call "matter," which is the bound energy serving as the seat of the transformations in the movement towards the cone of the future. Let us now apply this energetic conception to the phenomena of biology. Here I am indebted to Alfred J. Lotka's [4] contributions to the energetics of evolution.

This energetic conception is as follows: Since the fundamental object of contention in the life-struggle in the evolution of the organic world is available energy, the advantage in the struggle for existence must go to those organisms whose energy-capturing devices are the most efficient. In addition to directing energy into channels advantageous to itself, there will also result an increase in the total mass of the organic system which serves as the seat of the energy flux, for this energy flux is proportional to the mass of the system. This view may be summed up in the statement that natural selection will so operate as to increase the total mass of the organic system, to increase the rate of circulation of matter through the system, and to increase to a maximum the total energy flux (energy per unit time) through the system, so far as compatible with the restraints to which the system is subject. Aside from the fact that I am not sure whether Lotka's conception rests upon a dualism of matter and energy, the view which he presents and that of the present author are in accord. So far as I know, Lotka makes no attempt to relate differentiation of structure along physiological gradients to the differences of potential within the action currents as deposited by fields of force along the pathways of conduction.

[4] "Contributions to the Energetics of Evolution," by A. J. Lotka, *Proceedings of the National Academy of Sciences* (Washington), 1922, Vol. 8, No. 6.

Aside from the light which this may throw upon the mechanism of development of organisms as complexes of differentiated structures integrated into functionally coördinated systems of responses, this conception, taken in connection with the doctrine that the material basis of an individual has a field of developmental possibilities from which morphogenetic forces may select out certain patterns to weld on to the original nucleus, also helps us to understand that which the orthogeneticists have always insisted upon, namely, that variations may appear in the evolution of organisms which apparently serve no function at the time of their inception, but which later acquire survival value when supplemented by further variations in the same direction. Structures make their appearance in development before the performance of the functions to which they appear later to be adapted because we see only the visible sector of a curve of action much of which is imperceptible. If our conception of the field of force in biology is of any value, no structure appears which serves no useful function, even though the perceptible emergent may later seem to prove a harmful variation. Assuming a distribution of tension in the field of force as the basis of the pathways constituting growth potentials and physiological gradients for the specialization of tissues, these potential pathways represent provisional plans of action for the subsequent evolution of structures, having an adaptive value in representing tentative compromises between incipient conflicts of energies. Hence variations tend to flow in a general direction—until turned in some other direction—in something of the same fashion in which frost crystallizes on a window-pane.

The bearing which this may possibly have upon the inheritance of acquired characteristics is briefly stated. That structural variations and their reaction patterns must be inherited to some degree is obvious. The question is whether ontogenetic activities can initiate modified and phylogenetically inheritable traits. Perhaps we have been thinking of this transmission of acquired characteristics in terms of centuries, whereas the fixation of the result requires much vaster periods of time. Certainly, material organizations (conventionalized energy patterns), once deposited, are not so easily altered (except by dynamite!), for the very reason that any structural edifice constructed by evolutional travail has demonstrated its fitness to survive in the normal environment in which it exists. However, organisms are predisposed to acquire certain reaction-patterns, and the very thing which determines what reactions will be ontogenetically acquired also dictates what reactions will be phylogenetically continued. Both are effects of a more remote cause. Just as what was once an energy transformation has become a ma-

terial configuration, so what was once a function later becomes a structure.

IV

One of the astounding things about modern speculation in the field of theoretical physics is the inability to get away from anthropomorphism, or of attributing foresight to the events of nature. This has been well stated by Bertrand Russell,[5] who summarizes the evidence in the statement that the periodic processes of the quantum theory "seem to show that nature has a kind of foresight, and also knows the integral calculus, without which it is impossible to know how fast to go at each instant so as to achieve a certain result in the end. All this sounds incredible." As Professor Saunders[6] states in discussing atomic structure, "certainly it seems painful to conceive, as C. G. Darwin puts it, of an electron with a knowledge of the future, so that while leaping from one orbit to another it determines in advance the frequency with which it would be appropriate to radiate, taking into account its final destination. This is less physics than metaphysics."

In a sense the very possibility of the existence of electrons in space is a mystery. This has been well put by A. S. Eddington in his treatment of *The Mathematical Theory of Relativity*. As he says (p. 153), the laws of material structure do not have reference to the constitution of an empty continuum, but to the specified collection which aggregates must take up in order to adjust themselves to equilibrium with the surrounding conditions of the world.

These speculations are of interest to the philosopher in suggesting the inevitability of metaphysics, even in science, and because, more especially, they lend some scientific support to the theory of the internality of relations, *i.e.*, that the whole universe is responsible for and is involved in the explanation of any item in it—which is essentially the coherence theory of truth. Thus Einstein's conception of a spatially finite, but unbounded, universe suggests, as Eddington (p. 208) states, that the circumference of space, the greatest length in nature, may determine the relative size of the electron, the smallest thing in nature. From a terminological point of view the most interesting result of the theory of relativity would be the acceptance of the conclusion, for which there is some evidence, that there is a coördinate system relative to which matter as a whole is permanently at rest.

This condition of affairs makes it difficult to determine whether the relativists are talking sense or nonsense. Eddington's sugges-

[5] *The A B C of Atoms*, by Bertrand Russell, p. 140.

[6] "Some Aspects of Modern Spectroscopy," by F. A. Saunders, *Science*, 1924, Vol. LIX, No. 1516.

tion is that in so far as anything intelligible can be said about the fundamental entities to which Einstein's theory leads us, it takes the form of the statement that they are the very stuff of our consciousness. Eddington's doctrine, as stated in his *Space, Time and Gravitation* (Ch. XII), that it is the mind which has introduced into the external world the so-called laws of nature, is in line with Hermann Weyl's presupposition, in his *Space-Time-Matter,* that so far as the exterior universe is concerned it is the mind which has created not only space and time, but the matter it has put into the framework. In his epistemological theory Weyl acknowledges that he is following (p. 4) Brentano's theory of intentional objects and (p. 319) Husserl's "Phänomenologie."

Without attempting to pass judgment upon these abstruse speculations, or trying to ascertain any further what mind can mean in Eddington or Weyl's systems, I wish to return to my own conception of mind as a kind of space-time rhythm which, while bearing the history of its biological ancestry, also expresses a nisus towards the total universe of Space-Time as a continuum which has at all points determined the direction of events within its bosom, progressing in an emerging series of macroscopic rhythms towards the macrocosm which may be termed the cosmic field.

From this point of view the relation between mind and body is the microcosmic analogue of the relation between time and space, as S. Alexander views the matter in his *Space, Time and Deity.* What we call mind intersects the "physical" universe through the time-axis. A more concrete way of viewing the subject, and one more in harmony with our own conception, is to regard the relation between the unity of consciousness and its discrete neural pulses as analogous to the relation between an electron and the circumambient field of force in which it is immersed. Mind is always "in the making" in the sense that it is an ideal unity which is never actually realized. Perhaps we may even say that mind is the macroscopic rhythm towards which neural impulses strive to integrate themselves. Mind is an epitome of Space-Time in the sense that its characteristic activities, analysis, and synthesis, are expressions of a fundamental reality, substance-action, which is ever engaged in the complementary movements of differentiation and integration. This cosmic continuum, of which action represents the "curvature," thus providing for "universals" which may repeat themselves in space and time, to adopt Alexander's terminology, is the field in which all finite existents are set, and for this reason their modes of behavior have reference to a temporal sequence which constitutes the purposiveness of their responses. This holds for conscious purpose as well as inorganic teleology.

That the possibility of a non-existent future influencing an existent present is not *a priori* impossible may be indicated by the following passage from Weyl (p. 274, Eng. trans.): "Every world-point is the origin of the double-cone of the active future and the relative past. Whereas in the special theory of relativity these two portions are separated by an intervening region, it is certainly possible in the present case for the cone of the active future to overlap with that of the active past; so that, in principle, it is possible to experience events now which will in part be an effect of my future resolves and actions." The same general open-mindedness is expressed by Whitehead in a remarkable passage (p. 73) in his *The Concept of Nature:* "The materialistic theory has all the completeness of the thought of the middle ages, which had a complete answer to everything, be it in heaven or hell or in nature. There is a trimness about it, with its instantaneous present, its vanished past, its non-existent future, and its inert matter. This trimness is very medieval and ill accords with brute facts.

"The theory which I am urging admits a greater ultimate mystery and a deeper ignorance. The past and future meet and mingle in an ill-defined present. The passage of nature which is only another name for the creative force of existence has no narrow ledge of definite instantaneous present within which to operate. Its operative presence which is now urging nature forward must be sought for throughout the whole, in the remote past as well as the narrowest breadth of any present duration. Perhaps also in the unrealized future. Perhaps also in the future which might be as well as the actual future which will be. It is impossible to meditate on time and the mystery of the creative passage of nature without an overwhelming emotion at the limitations of human intelligence."

The acceptance of these notions would seem to commit us rather definitely to certain doctrines, among which are to be found characteristics not very different from those embodied in absolute idealism. Not the least noteworthy of these is that of a kind of spiritual determinism, which seems to demand that the realization of such rhythms as life and mind have always been potentially existent, and that "emergence" is a kind of causality which, without depriving evolution of its novelty, from our point of view, operates as the expression of a "principle" which transcends finite perspectives.

Like singularism, creative monism must hold that the cosmos is a self-differentiating unity or integrating multiplicity, and that, in some sense, we are living in a spherical universe within which the ultimate dualism appears as that of two counter-tendencies, with one as the return movement of the other. In other words, the synthetic aspect of nature is one side of a process which includes integra-

tion or assimilation on the one hand, and dissimilation or disintegration on the other. If this be true, the opposition between absolute and relative, finite and infinite, necessary and contingent, continuous and discrete, attraction and repulsion, is a false antithesis, or, rather, they are complementary aspects of a universe which includes both moments. These two movements, by means of which reality transcends itself in a higher synthesis, are recognized by physical science in the conception of the energic streamings symbolized by the first and second laws of thermodynamics, both of which are now interpreted in a statistical fashion.

This view of an upward and a downward path is embodied in Bergson's conception of a reality which is making itself in a reality which is unmaking itself, and has been expressed by Plotinus in the conception of an outgoing and a returning path, a notion which was revived by Herbert Spencer in his conception of evolution. Thus, in a way, we seem to be returning to the notion of cyclic processes which, as we say, took the "joy out of life" for Nietzsche. Physicists have told us that this notion of eternal recurrence is false for the reason that the second law of thermodynamics makes the progress of physical processes irreversible. However, Einstein's[7] notion of a spatially closed universe, in which energy does not wander off to infinity, saves the universe from becoming desolate, as Moritz Schlick puts it in his *Space and Time in Contemporary Physics* (Ch. IX), and this modification of the principle of the degradation of energy opens up again the possibility of a universe of recurring cycles. This possibility is mentioned to provide an opening for the introduction of the conception of a world which is spherical in its space dimensions, but is open towards plus and minus infinity in its time dimension.[8] There is no radius of curvature in the time direction. Such a conception not only affords a place for "progress," but also provides an escape from the dilemma of a creative evolution with no direction *versus* the spiritually deterministic, but uncreative, universe of "radical finalism."

This is the only suggestion I have towards the solution of the most difficult problem which the human intellect has ever set itself—the problem of time and change.

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[7] "Cosmological Considerations on the General Theory of Relativity, by A. Einstein, *The Principle of Relativity*, New York, 1923, pp. 175–188.

[8] *Space, Time and Gravitation*, by A. S. Eddington, 1920, p. 159.

TOWARDS REALISTIC PSYCHOLOGY

THE title of this short paper ought, perhaps, to be more definite—and more modest. A better alternative would be "Some suggestions towards a realistic psychology of feeling," for it is feeling which I wish mainly to discuss. But the psychology of feeling here put forward is, if true, so important and far-reaching in implication, that the title, suggesting as it does a step in a movement, perhaps justifies itself after all.

A word as to the term "realistic." "Realism" has many meanings to-day, which is not, as some think, a sign of its inherent weakness, but rather of its vitality. When I use it here I am referring to epistemological, not to metaphysical, doctrines. Realism is primarily a doctrine of knowledge, and though as a fact many realists deny, *e.g.*, objectivity to value, there is no such necessary implication in realism, and I do not propose to touch at all on this aspect of the matter. Generally speaking, epistemological realism may mean (*a*) the doctrine that knowing does not make, but discovers, objects different from and independent of, itself, (*b*) the doctrine that the knowing process does not wholly falsify, and that, whilst our knowledge is selective and limited in the extreme, and although perception and its various media may distort, we may yet, by the process of analysis and synthesis and comparison, know some aspects of reality more or less as they are, and bit by bit. (This statement perhaps errs on the side of caution.) Again, realism may mean (*c*) that knowledge is direct, that ideas do not block the way to reality, but that they reveal it directly. (*d*) Realism may mean, again, an attempt to explain knowledge in terms of its object; it may mean the tendency to explain the subject in terms of the objects known, and even in the end to deny to the subject separate existence at all.

With reservations, the present writer could subscribe to all these views of knowledge (which are not exclusive) excepting that implied in the very last phrase. Although in citing some of the aspects of realism I have not in mind particular schools of realism (the views of the American Critical Realists seem to me to be, not realistic, but to end in agnosticism), yet I have in mind, when referring to the tendency to deny the existence of the subject, the American New Realists, and particularly Professor Holt. Holt's now famous metaphor of consciousness as the cross-section of the world illuminated by the search-light of the organism, is the most radical example of the attempt to reduce subject to object. That seems to the writer to go too far, but the reference is useful in marking the position we shall here take up. Whilst I disagree with Holt,[1] it seems to me

[1] See below, p. 497.

that the psychology of knowing, acting, and feeling can only be understood if we take these, not as separate mental entities, but as aspects of a whole *objective* conscious situation.

My thesis, as regards feeling, is that feeling is the subjective aspect of *a whole* situation, in which a conscious organism is together with a portion of the objective world. By "conscious organism" and by "together" I mean to imply no particular relationship of body and mind nor any reference to Professor Alexander's views.

The normal view of consciousness is that there are three modes, always present together, though stressed variously, cognition, conation, and feeling. We cognize, we strive, we feel pleasure or pain (or unpleasure). On this view feeling is side by side, and, so to speak, on a par with the other two.

I have previously [2] protested against the *identification* of feeling with pleasure and pain (or unpleasure), and I would here repeat that protest against the use of the terms "feeling" or "affect" to mean what, I think, ought to be called clearly "pleasure and pain (or unpleasure)," or, better still, "hedonic *tone*." Pleasure or pain is a character or quality, an adjective, of all feeling, and is not itself identifiable with it, and it is most misleading to imply that pleasure or pain is a *mode* of experience, as most psychologists do when they speak of "feeling" as pleasure or pain. Pleasureableness and painfulness are the different *qualities* of the *mode* feeling. It now remains to be seen in what sense feeling is a "mode."

If feeling is the subjective side of a *whole* subject-object situation, as we defined it, it will follow that feeling will not only not be identifiable with an abstracted hedonic tone, but that it will be something more even than a "mode" of experience, side by side with cognition and conation. For feeling will take on its particular concrete character in each particular case from the particular nature of the object and of the particular relation of the subject to it. Feeling will extend over conation and cognition in reaction to the object. It is this thesis and some of its results which I wish to discuss.

It seems to me as necessary to emphasize in psychology the transitiveness of experience as it is to emphasize it in epistemology.[3] In spite of the advance of what may be called functional psychology, there is still a strong tendency in deed, if not in word, to regard mental processes as entities isolated from their objects. This is so particularly with regard to ideas in cognition. If, however, we remember that *any* conscious situation involves a subject-object relation, and if we can accept the thesis that feeling shares in this transitive

[2] *British Journal of Psychology*, July, 1923, "Instinct, Emotion, and the Higher Life."

[3] See the writer's *Knowledge and Truth*, Macmillan, 1923. Pp. 183 sqq.

relationship, it will alter very radically our notion not only of feeling, but of cognition and conation. For feeling is, as we said, not merely a mode side by side with cognition of, and conation towards, an object, but shares in the objectively directed character of these in a very special way. And these in their turn have a functional relation to the object different from that of feeling.

The functional difference between feeling on the one hand, and cognition and conation on the other, may be indicated by saying that whilst feeling is the subjective or experiencing side of the total experience of the object, cognition and conation represent the more objective side in the sense that it is their function to *adapt* themselves to the objective world. Whilst cognition and conation in different ways represent a focussing, grasping, reacting function, feeling is just the experiencing of this focussing, grasping, reacting process, and is pleasant or painful according to the nature of the objects of consciousness and their relation to consciousness, and in so far as these processes are, or are not, efficient. The question as to what is the function of feeling is the very large one of the place of consciousness in reality at all, and into that problem we can scarcely enter here.

There is a certain ambiguity about our phraseology which is, I think, inevitable, but the reason for which it is necessary to point out. We have spoken of feeling as "the experiencing side of the total experience of the object," and as apparently identical with consciousness or awareness. The reason for the ambiguity is that these terms "experience," "consciousness," "awareness," may mean either of two things. They may have reference (1) to the *whole* cognitive-conative-felt experience of an object, or they may refer (2) to one aspect of it, usually to the cognitive—or to the feeling-aspect, rather than the conative. Our own usage is really a kind of half-way house between (1) and (2), and therein lies the difficulty of the conception. When I call feeling "experiencing," I mean neither that feeling is a mere simple "mode" like cognition or feeling in the current sense, nor that it is the *whole*, as (1). What I do mean is that feeling is the subjective side, the mental or subjective reflection, so to speak, of the whole transitive congitive-conative process. That cognition-conation represent the more objective side of our transitive whole experience has already been pointed out.

As feeling is *of* the cognitive-conative reaction to an object, it lies before us to consider how variation in cognition and conation affects feeling. At different levels of life we find that conation and cognition, though invariably present together, are relatively differently stressed. At the level of animal life, where instinct is largely predominant, conation, often of quite a violent sort, plays

a more important part than cognition, although cognition is, of course, as we said, present. The form of adaptation which the animal must put forth is the active adaptation which is necessary to survival. A thing means to the animal mainly his own reaction to it. The sight of food when hungry, the sight or smell of the opposite sex at certain times, the presence of danger, all of them mean the appropriate responses, such as seizing and tearing, sexual movements, the attempt to escape, respectively. If we think of instinctive situations in our own lives, we may account for the peculiar and violent character of the excitability which often accompanies each by thinking of it as simply the feeling or subjective side of the violent conative processes. This is, as far as it goes, identical with McDougall's doctrine of primary emotion, but the difference is that whilst McDougall admits it in the case of these sensational primary emotions, he does not apply it to the derived emotions. For me, as I have tried to show elsewhere,[4] emotion is simply feeling intensified, and this doctrine will apply to any emotion, primary, secondary, derived, or non-instinctive (if such exist). McDougall accepts, in reference to the derived emotions, the ordinary doctrine of feeling as pleasure and pain and thinks that the derived emotions may be differentiations of pleasure and pain. That view appears to me false.

But whilst at the instinctive level the aspect of conation is uppermost, and feeling at this stage is mainly the feeling of more or less violent conative reactions to the object, the case is altered in the experience of man at his "higher" moments. In the more developed life of civilized man, where the primal necessity always to react instinctively has in large measure been overcome, man is able to know in more objective fashion. Pure cognition, if such were possible, would mean pure reflection of the object in consciousness, or, to drop the unsatisfactory "reflection" metaphor, it would be the object "self-conscious." If we can imagine a supreme intelligence that was merely cognitive, the universe would be self-conscious therein. With finite beings, at least, this is, of course, not the case. Aristotle's dictum "it thinks in us" is profoundly modified by the "in us." Our knowledge is selective, is teleological, and is always to some extent determined by interest. In so far as finite interest is present there is also present conation or striving. Finite knowledge is, indeed, a function of man's limitation and position within reality, so that if a man were to confine himself to one part of his experience, that would mean that his knowledge was the function exclusively of his

[4] *British Journal of Psychology*, July, 1923, *op. cit.* I ought perhaps to say that my position has had to be largely modified and expanded, owing both to development of thought and to the appearance of *An Outline of Psychology*.

interests and point of view. In fact, of course, this does not happen, and the ideal of cognition to apprehend the objective still remains. The experience of one moment is supplemented by that of another, and the experience of one person by that of others, so that knowledge becomes more stereoscopic, more of things as they are in their rounded fullness.

If we could imagine a situation in which there was pure objective cognition or sheer "reflection" in consciousness of the object as it is, there would then, I suppose, be no feeling at all. There would probably be no consciousness of distinction of subject from object, therefore no feeling of self in relation to the object, and no feeling of striving, even the striving to know better. Feeling could only occur, it would seem, if the object known were sentient, *e.g.*, a feeling person, or the universe as a sentient whole. In that case, the feeling would not, properly speaking, occur in the knower. Rather would there be perfect *knowledge*, in the knower, of *feeling*, in the object known.

But, as we said, perfect cognition is, so far as we finite beings are concerned, a myth. Finite knowledge is directed to an object which, as known, is to some extent modified by the relation of the subject to it. Hence the feeling which is the subjective side of the situation is the feeling of the knowing and the striving, which are determined by the nature of the object, the capacity of the subject, its position, interests, *etc.* If the subjective practical interests are too great, so that the object known tends to be very distorted on account of them, or if for any other reason (*e.g.*, ignorance combined with great desire to know), the *striving* becomes very marked, then the feeling would tend to assume the character which the feeling of conations usually possesses. But normally, at the human level, when any stage of knowledge is reached (and we are not at the moment striving hard to know further) the feeling is so much the feeling of knowing, and knowing so much the knowing of the object, that feeling scarcely draws attention to itself, its *tone* (pleasant or unpleasant) is low and the *object* occupies the focus of the attention.

To sum up the preceding paragraphs, we may say that in a mainly conative (*e.g.*, instinctive) situation we feel the whole situation of conscious organism in relation to object. But, because conative adaption is upmost, being important for the organism, feeling is mainly the feeling of that. In more developed forms of cognition, however, there is a more objective attitude; the object occupies our attention and any feeling present is the feeling of striving to *know* the object. The nature of the object affects the striving to know, and therefore conditions feeling. (But it would be going too far to say that the feeling is the feeling *of* the object.)

I desire to stress the fact that both cognition and conation are but different forms of objective adaptation, and that it is in this function that they become connected in one teleological whole. We know in order that we may become masters of the world we live in. Knowledge is power. Cognition at its elementary stages practically ceases on attaching conative labels to the objects of experience, such as we describe verbally, as "fly," "seize," "examine further." At the highest levels of cognition the labelling process is expressed more in substantive form, is infinitely more complex, and we become interested, as in science and philosophy, in the relations between the particular objects and the one which we label "universe" or "reality." But the sheerest knowledge can not ultimately be said to end with itself. If we were mere knowing beings, and infinite ones at that, it *might* be so. But the very interests of the knowing, which is finite and limited, implies further striving, and this finite striving to know duplicates itself, in most normal men, in the striving to adapt by appropriate action to the ever widening reality which knowledge reveals. Knowing and acting, cognition and conation, always go hand in hand (however the academic mind dislikes the idea), though as a rule one leads while the other lags. Many of the mistakes of psychology, as of philosophy, owe their existence to an ignoring of this one very simple fact, that cognition and conation are but different and complementary modes of adaptation to one reality which is ultimately the universe. Holt's search-light metaphor, already referred to, is a quite glaring example of this elementary error. If we were exclusively knowing minds, and perfect ones, possibly subject might be indistinguishable from object known. But we are not. Our finitude implies a point of view of a knower whose knowledge is not identity with, nor mere reflection of, the object, but is of things in imperfect part inviting the striving to further knowledge. And not this only, but the striving also to master our world through action. Bergson has clearly shown the mutual influence of knowledge and action.

The general tendency of the views put forward is to move away from faculty psychology towards a functional psychology which is realistic. The overt tendencies today are, of course, away from faculty psychology, but even those who most dislike it are apt to find themselves moving along in the old ways. "Instinct" psychology lays enough stress on specific function, and yet even this, as Mr. Field has pointed out,[5] suffers from many of the drawbacks of faculty psychology. The view here put forward avoids the difficulties of faculty psychology, it seems to me, in so far as it explains cognition and conation, and so feeling, in terms of a general teleologi-

[5] *Mind*, July, 1921.

cal principle, namely, the necessity for the finite conscious organism, one of a number of real things in a real world, to adapt itself to its environment, the universe. Man's desire to know the universe, his discovery through knowledge of his place and function in it, and again, man's *expression* (whether it be in intellectual symbols, or in art symbols or in conduct) of what he finds there, is the outcome of the one necessity, to *adapt* himself to the world, of which he is an integral part.

If, then, it is true that cognition and conation are different modes of adaptation, the whole stress will be on the necessity prescribed by single *objective* environment which demands adaptation in these ways. We are not to think of a faculty of knowing, a faculty of acting, a faculty of feeling, but of a whole conscious organism in *relation* to a certain environment. Consciousness is the miracle, the knowing and the acting are the functional necessities conditioned by the particular *relation* of the organism to the environment. If the conscious organism is at one stage in relation to the environment, one kind of reaction is mainly demanded, *e.g.*, instinctive reaction. If the conscious organism is at a more developed stage, the object appears differently to the subject, owing to the different relation of the two. Primarily, in this case, we know rather than act. In the first case, adaptation requires marked and often violent conative activity, in the other case it requires greater receptivity. And the subjective side of the situation is feeling, pleasurable or painful, which always reflects the *whole* of the situation.

In fine, the meaning of mental process only becomes clear when we consider it in strict relation to that which is not mental, when we regard mentality as integral with a wider reality of which it is simply a functioning part. To consider mind thus is to adopt a psychology the spirit of which is in a true sense "realistic."

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BOOK REVIEWS

Die Philosophie Wilhelm Wundts. WILLY NEF. Leipzig: Felix Meiner. 1923. x + 357 pp.

Mr. Nef maintains that Wilhelm Wundt, although celebrated as psychologist, still lacks his due appreciation as philosopher. The new book attempts to repair this damage. By concentrating into a complete system the philosophical statements dispersed among Wundt's voluminous publications, it intends to simplify the study of Wundt's ideas and to prove what has been chiefly contested, their originality and logical consequence.

The author's purpose, however, is not restricted to such an apology. Pointing out the fact that Wundt tried to embody in his construction all the special scientific knowledge of his time, he claims for him the importance of a representative and outstanding figure of the end of the nineteenth century. Assuming this universality of his subject, Mr. Nef gives to his own survey the worth of a general introduction to philosophical problems. Thus his work tries to combine four entirely different tasks: synoptical presentation of Wundt's ideas, apologetic demonstration of their value, historical determination of their importance, and realization of their pedagogic efficiency.

Of these four tasks, however, only the first one can be admitted as fulfilled by the author. And it was the only one that possibly *could* be fulfilled; for Wundt was neither an original nor a consequent philosophical thinker, and his historical importance is entirely limited to the field of experimental psychology. This book, written by one of his admirers with full devotion and a perfect knowledge of his works, involuntarily proves and confirms it.

The introductory chapter contains commentaries on the very trivial statement: "Philosophy has to concentrate the general results of the special sciences into an incontradictory system." We learn that this sentence includes Wundt's general idea of the essence and task of philosophy. The second chapter expounds Wundt's logic and his theory of knowledge, according to which we have to distinguish two different realms of reality: the data given immediately through experience and belonging to the internal sphere of psychology, and the statements determined indirectly through inference, composing the external world of natural science. The principles of these two realms are discussed in a separate chapter, entitled "Naturphilosophie und Psychologie," while the last two parts of the survey are dedicated to Wundt's "ethics" and "metaphysics."

Wundt's antithesis of psychology and natural science, mentioned in the preceding paragraph, is open to criticism. Its presumption is certainly true. In constructing the world of physics as an abstract world of merely conceptual objects, we have to seclude all sensitive data of perception in the internal world of the subject. But how is this consistent with Wundt's declaration that the realm of psychology, being the world of "internal experience," includes all "immediate data of intuition"? Shall this "immediate intuition" *precede* the distinction of a subjective and an objective order? (So the term "immediate" seems to denote.) Or shall it *succeed* this distinction and relate merely to the subjective "rests" which remain after the external and objective world is conceived? However we decide, we get entangled in contradictions. Besides, in both

cases it is incomprehensible how psychology, if dealing with data of pure "intuition," can possibly be an explanatory science. If it explains (and so Wundt supposes), it has to use concepts which transcend intuition; and in doing so, it seems, from the methodic point of view, not entirely opposite to natural science.

Similar lack of clearness appears in the other parts of the book. It is evident, for instance, in Wundt's method of discussing elementary logical questions—in his classifying all judgments on the basis of their relation to intuition; in his trying to prove that every abstract and logical statement has developed out of intuitional facts; in his maintaining that even the axiom of reason is founded on the structure of space and time. It appears in Wundt's own withdrawal of these fruitless deductions—in his falling back upon Kant's "correlation of intuition and thought"; in his way of using this formula to veil his indecision more than to solve it. Moreover, it is evident in Wundt's ambiguous mediation between "Apriorism" and "Empiricism," in his attempt to combine systematic analysis and genetic derivation. Finally, Wundt's lack of clearness is evident in his "ethics": for, after having stated the difference between normative and explicative sciences, Wundt ignores it himself by trying to find for every postulate a psychological explanation. The result is that he confounds the realm of aims with the realm of nature; that he constructs a natural evolution from lower to higher aims—an obscure composition out of Utopian invention and interpretation of history, ending with a fantastic depiction of "universal empires," "universal religions," "universal cultures," and a "universal history."

This boundless speculation, beginning in Wundt's "ethics," culminates, however, in Wundt's "metaphysics." Distinguishing, analogous to Kant, the ideas of cosmology, psychology, and ontology (the latter taking the place of Kant's theologic ideals), the explanation remains reasonable so far as it is based on exact sciences. Remarkable, for instance, how the cosmologic antinomies are reduced to the paradoxes of the infinite, and how these paradoxes themselves are solved through defining, according to mathematics, two different conceptions, the "infinite" and the "transfinite." But as soon as the metaphysics of psychology is touched, a wild speculation begins on the will as a uniting principle of soul and continues in the "ontologic" discussion, where the mutual relations of metaphysical unities of will are expounded. They are all supposed to be included in the mysterious "Weltgrund"—an idea so dissolving and vague, that one feels inclined to cite the witticism of Hegel, who compares the romantic idea of "the absolute" with "the night where all cows are black."

But are there, after all, not at least a few positive elements in Wundt's philosophy? Two statements may be mentioned. The first one denotes that the mutual contradictions of perceptions stimulate abstractive thought. The idea is not very new, since Plato, for instance, conceived it. But, like most of Plato's conceptions, it has kept its perfect value. The second one concerns the change in the meaning of such physical principles as "substance" and "causality." Formerly designating the metaphysical permanence and persistence of things, they now denote the methodic conditions of motion. But Wundt states this change merely as a simple historical fact, without giving a philosophic explanation.

How could it happen that, despite this insufficiency of positive elements, Wundt's work seemed to have an enormous amplitude?—through the enormous knowledge it presents. An accumulation of detailed facts veils the lack of philosophic construction. For Wundt's capacity of receiving knowledge was far stranger than his faculty of producing thoughts. The immense and numerous volumes he wrote indicate this disproportion.

While every real philosopher differentiates and distinguishes problems, Wundt dissolved them by his deluded and imperceptive idea of unity. However, in his manner of dissolving them he was, if not a representative, at least a typical, figure of his time. The psychologistic tendency prevails in his thoughts. Trying to treat systematic questions through genetic deduction, he compromised the sphere of logic with the sphere of psychology, the *a priori* aspect with the empirical aspect, the realm of nature with the realm of aims, the things that are with the things that ought to be. Regarding this confusion, his philosophical reflections (to cite a celebrated parable) resemble a hospital report written by the patient himself and not by the doctor. An analysis of this bulletin would have been interesting. But Mr. Nef preferred to treat its author as a hero; which seems like an anachronism, inasmuch as the refutation of psychologism has been accomplished in the present generation. While an analysis could have explained the deeper reasons why Wundt founded no philosophical school, why he lacks the historical importance of such men as Herman Cohen, as Windelbandt, and Rickert, as Brentano, Meinong, and Husserl, Mr. Nef limits himself to a sentimental excuse: that, having had bad experiences with his masters, Wundt did not want to be a master himself.

The lack of an original sense of criticism is the principal defect of this book; it appears even where the author tries to correct several of Wundt's conclusions. For he corrects them mostly by citing opinions of other philosophers. Regarding this manner of compilation, his method corresponds to his subject. But this is just the rea-

son why his book is not commendable for pedagogical purposes. Mr. Nef forgot the statement of Kant, that not philosophy, but only philosophising, can be taught.

Besides, the interpretation of former philosophers is not always correct. Wundt's criticisms of Kant and Spinoza, thoroughly reported by Mr. Nef, are mostly based on misunderstandings; and concerning Leibniz, the book contains a veritable mistake (p. 312): the "Monads," being defined as "active substances," "keep their substantial character, even when you imagine their activity being suspended." But, according to Leibniz, the substance of monads is nothing other than their special order of acting, of producing their world of appearance; so it seems impossible to separate their substance from their activity.

Nevertheless, this book has, after all, a certain merit. What Wundt himself could not say in less than thousands of pages, it concentrates into 317. It may, therefore, be helpful to those who have ventured to penetrate the works of Wundt, but got lost in the labyrinth of his prolix style.

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A Critical Examination Of Psycho-Analysis. A. WOHLGEMUTH. New York: Macmillan Co. 1923. Pp. 246.

Wohlgemuth makes his criticism available for the non-psychological reader by prefacing his discussion of psycho-analysis with a statement of the "most elementary facts of psychological teaching." In this, he emphasizes, among other things, the fallacies inherent in the Freudian concept of the Unconscious, and shows how the psycho-analysts' inferences are at variance with the findings of the author and others, that the two feeling tones, Pleasure and Unpleasure, have a similar influence upon memory. He then proceeds, in cheerful fashion, to consider, one by one, other assumptions of the Freudians, pointing out cases of metaphor used to obscure argument, of proofs so arranged that "head I win, tails you lose," of circular arguments, of attempts to throw the burden of proof upon the critic. In discussing Symbolism, the author brings evidence to show that the serpent is frequently a symbol of longevity, immortality, divinity, health, health-giving art, or wisdom, and that these explanations of its frequent display among various people are as probable as the usual psycho-analytic one. He shows through quotations from Freud and his followers the important part that the suggestions of the analysts play in building up the patient's complexes. The appeal which "Freud's psychology" has for a certain class of people is explained by ascribing it to the "marked pictorial character of his

phantasies which, as they can be almost visualized, make the absence of any proof unnoted," and Freud's teaching is classified with the "Doctrine of Signatures," the "Doctrine of Sympathetic Cures," Mesmer's "Doctrine of Astral Force and Animal Magnetism," Reichenbach's "Doctrine of Od," Gustav Jager's "Discovery of the Soul," Blondlot's "N-rays," and the "Clever Horses of Elberfeld."

The book should prove of use to the psychologist who needs a treatise to give (along with Dunlap's *Mysticism, Freudianism and Scientific Psychology,* and Woodworth's "Some Criticisms of the Freudian Psychology,"[1]) to those students or friends who still confuse psycho-analysis and scientific psychology. Such readers, when once they have weathered the somewhat technical first chapter, will probably derive a bit of pleasure from the merry fashion in which the author pokes fun at the Freudian hypothesis, so much that they may even be willing to forgive the inclusion of some very poor puns. Most effective in discrediting psycho-analysis may be, for these non-scientific inquirers, the emotional revulsion experienced upon reading the well-chosen description of an analyst's conversation with his four-year-old son.

The psychologist, to whom the book may appear to be mainly a reiteration of objections which have occurred to many workers, may feel that the material might with profit be much condensed. The sensitive reader may be annoyed by the constantly recurring "I," and the frequent exultant "I have proved." A little more space might well have been devoted to substitutes for the criticized doctrines. The reader would appreciate the inclusion of a scientific description of the dream process and a more detailed account of the author's "Law of Association."

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JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PSYCHOLOGIE. Bd. 95, Heft 1 u. 2. Über wissenschaftliche Einfälle: *Karl Groos.* Das Zielen bei Tieren (Versuche mit Hühnern: *D. Katz* u. *H. H. Keller.* Zur Sozialpsychologie der Vögel: *Th. Schjelderup-Ebbe.* Über Grundfragen der Farbenpsychologie: *E. R. Jaensch*—XI: *Oskar Feyerabend:* Der innere Farbensinn der Jegenlichen in seiner Beziehung zu der angenäherten Farbenkonstanz der Schdinge (Schluss von XI).

BOLLETTINO FILOSOFICO. Anno VI, N. 1 e 2. Per S. Tommaso: *A. Gemelli.* Kant: *P. Marrucchi.* La vita e l'opera dell'Acri: *A.*

[1] *The Journal of Abnormal Psychology,* August, 1917.

Anile. Taylor Coleridge e la filosofia Kantiana: *G. Ferrando.* Una nuova definizione dell'arte: *G. Levi.* Elena Keller: *D. Provenzal.*

MIND. Vol. XXXIII, No. 131. Recent Criticism of the Idealist Theory of the General Will (II): *J. H. Muirhead.* Mr. Johnson on the Logical Foundations of Science: *C. D. Broad.* Soul Beliefs and Hypotheses: *R. H. Thouless.* The Crowd and the Herd: *S. B. Ward.* Mind and Nature in Prof. Whitehead's Philosophy: *L. S. Stebbing.* On Paramnesia: *A. Wohlgemuth.* The meaning of "Emergent" in Lloyd Morgan's "Emergent Evolution": *Flora I. MacKinnon.*

Seashore, C. E.: A Medico-Psychological Survey of Morons in Iowa. (Reprinted from the *Journal of the Iowa State Medical Society,* March issue, 1924.) 14 pp.

Mackay, Donald Sage: Mind in the Parmenides. A Study in the History of Logic. 114 pp.

NOTES AND NEWS

SIXTH INTERNATIONAL CONGRESS OF PHILOSOPHY

The American Philosophical Association, through the courtesy of Professor H. Wildon Carr, Honorary Secretary of the Fifth International Congress, appointed for London in 1915, but interrupted by the war, has been authorized by the Permanent International Committee, as constituted at the Congress of Bologna, 1911, and by the English Organization Committee of 1915, to convene the next International Congress in the United States. The American Association has also received assurances of cordial support from philosophical scholars in England, France, Germany, and Italy. It, therefore, announces its decision to invite the philosophers of all nations to meet with it in the United States in the second week of September, 1926. The place of meeting—to be more definitely announced later—will be at one of the Eastern Universities, not far from New York. English, French, German, Italian, and Spanish will be recognized as the official languages of the Congress.

In a few months the American Association intends to issue a fuller announcement of the plan of the Congress and more formal invitations to its sister associations, other learned bodies, and our colleagues throughout the world. Meanwhile, inquiries and correspondence may be addressed to the Corresponding Secretary, Professor John J. Coss, Columbia University, New York, U. S. A.

For the Organizing Committee:

NICHOLAS MURRAY BUTLER, *Chairman.*

A. C. ARMSTRONG, *Honorary Secretary.*

NEW YORK, AUGUST, 1924.